

Date: Sun, 14 Aug 94 04:30:21 PDT  
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>  
Errors-To: Ham-Space-Errors@UCSD.Edu  
Reply-To: Ham-Space@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Space Digest V94 #225  
To: Ham-Space

Ham-Space Digest                      Sun, 14 Aug 94                      Volume 94 : Issue    225

Today's Topics:

                    2 meter CW uplink  
            APT-Satellites: Report AUG 07, 1994  
                    Galileo SL-9 Impact Image  
            Homebrew Global Positioning System (GPS)  
                    Question on AO-21  
            Where to find Satellite Freqs-Info

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>  
Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

-----

Date: Fri, 12 Aug 1994 17:02:16 GMT  
From: ihnp4.ucsd.edu!library.ucla.edu!agate!howland.reston.ans.net!gatech!kd4nc!  
ke4zv!gary@network.ucsd.edu  
Subject: 2 meter CW uplink  
To: ham-space@ucsd.edu

In article <3260es\$h9g@hatch.sonalysts.com> gerheim@sonalysts.com (Al Gerheim)  
writes:

>

>Some authors have recommended using an FM HT for a CW uplink on 2 meters.  
>the problem with this is that many HT's take about 200 msec. to generate  
>a carrier from the time they are keyed on. This makes the CW unintelligable.  
>I also own a 20 watt amp for the HT, and would like to know if there's a way  
>to key the amp, or even key the RF going \*to\* the amp. I feel I'm within  
>a few \$ of a decent 2 meter uplink, but can't get the pieces together.

A MOPA set. :-)

Sure you can key the amplifier. Key just the PA transistor B+ unless you like to hear relays clank. You'll have to manually TR. You'll likely need a click filter in the keying line and a key that can handle 3 or 4 amps. Old Navy keys with coin silver contacts would be ideal. A multistage amp would be easier, you could just key the driver rather than the PA and have to switch less current.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				gary@ke4zv.atl.ga.us

-----

Date: 8 Aug 1994 07:13:53 GMT  
From: lll-winken.llnl.gov!uwm.edu!psuvax1!news.pop.psu.edu!news.cac.psu.edu!  
newsserver.jvnc.net!nntp.gmd.de!oskar.gmd.de!user@ames.arpa  
Subject: APT-Satellites: Report AUG 07, 1994  
To: ham-space@ucsd.edu

Observed at station 50.7 NLat, 7.1 ELon, AUG 07, 1994

NOAA-9: APT 137.62 \*OFF\*  
NOAA-10: APT 137.50 On  
NOAA-11: APT 137.62 On  
NOAA-12: APT 137.50 On  
Meteor 3-5: APT 137.85 On

NOAA-9 remains off due to VHF-conflict with NOAA-11.  
I did not check for Meteor 2-21, but it should be off  
(I had to disconnect the receiver due to thunderstorm).

+-----+  
|Peter Henne (peter.henne@gmd.de) |  
| (henne@gmd.de) |  
|German Nat.Research Center.f.Comp.Science |  
|D-53754 St.AUGUSTIN, Germany |  
+-----+

-----

Date: 12 Aug 1994 16:47 EDT  
From: library.ucla.edu!csulb.edu!nic-nac.CSU.net!usc!howland.reston.ans.net!  
gatech!news-feed-1.peachnet.edu!news.duke.edu!eff!cs.umd.edu!

newsfeed.gsfc.nasa.gov!nssdca.gsfc.nasa.@ihnp4.ucsd.edu  
Subject: Galileo SL-9 Impact Image  
To: ham-space@ucsd.edu

FIRST GALILEO SL-9 "JAILBAR" IMAGE AVAILABLE AT THE NSSDC

The National Space Science Data Center (NSSDC) at NASA's Goddard Space Flight Center is pleased to announce the availability of the latest Comet P/Shoemaker-Levy 9 impact images taken by the Galileo spacecraft.

The images can be obtained using the World Wide Web (WWW) via the URL below.

[http://nssdc.gsfc.nasa.gov/sl9/comet\\_images.html](http://nssdc.gsfc.nasa.gov/sl9/comet_images.html)

As of 4:00pm EST, August 12, 1994 we only have the first "Jailbar" image, but we will be providing the full resolution images as soon as they become available.

Syed S. Towheed  
Systems Programmer  
Hughes STX Corp.

[illegible]

[http://www.gsfc.nasa.gov/nssdc/nssdc\\_home.html](http://www.gsfc.nasa.gov/nssdc/nssdc_home.html)

Date: Sat, 13 Aug 1994 08:25:14 GMT  
From: ihnp4.ucsd.edu!dog.ee.lbl.gov!overload.lbl.gov!agate!howland.reston.ans.net!  
swrinde!emory!rsiatl!ke4zv!gary@network.ucsd.edu  
Subject: Homebrew Global Positioning System (GPS)  
To: ham-space@ucsd.edu

In article <32ggg8\$hsh@hollywood.cinenet.net> maustin@hollywood.cinenet.net (Mark Austin) writes:

 $\succ$ 

```
>I had an idea.  How about linking up a GPS with a cellular phone and
>a large battery to power both for a couple of days.  Then dial a number
>on the cellular where you want the GPS to send it's location info and
>drop the whole bundle into someone's car.  Since GPS info can be used
>with several very cheap street mapping systems (Delorme for one) you'll
```

>be able to sit at home and watch them driving down the street on  
>your home computer. Should be able to do this cheap. A couple of  
>hundred dollars (with cheap GPS and cheap phone). I have no ideas  
>on keeping cellular costs down though. One thought would be to set  
>the phone to answer and power up the whole gizmo and then shut down  
>after a call is placed into it. You wouldn't get a continuous  
>signal but you'd be able to find where someone is on demand (if they're  
>within cellular calling range). Such a setup could last for a LONG  
>time with the proper battery.

You aren't going to be able to get a GPS and cell phone for a couple hundred dollars. The cheapest GPS receivers are around \$400, and so are cell phones unless you roll their cost into a long term service contract. And monthly and per minute cell phone charges will mount up fairly rapidly. By using packet radio, amateur or commercial, you can send position updates on a regular basis without incurring quite as much cost.

DeLorme Mapping and City Streets are a couple of commercial map systems that work with GPS. However, APRS (Automatic Packet Reporting System) is in some ways better. While it lacks the friendly user interface of the commercial products, and it's pre-made map databases are skimpy, you can make your own maps, and it works with local and remote GPS receivers (using packet UI frames for the latter). It also supports other information about the remote sites such as range and bearing data from DF equipment, and arbitrary text messages.

However, what many of us want is \*differential\* GPS. The Coast Guard, FAA, and others send out position deltas from a fixed benchmark receiver that are received and used to correct the reading of the local GPS receiver. These transmissions are either at MF or VHF depending on the system. A special receiver is required, and either a GPS receiver designed to work with differential signals, or a PC that can take the timestamped position reports and reconcile them via software, is used to give a true position. This method removes the deliberate SA jitter, and other error sources such as varying atmospheric propagation factors, from the position data. This allows much greater precision in determining location than raw GPS alone.

It would be nice if the APRS author would support this mode in his software. Some of us are willing to set up benchmark receivers on the amateur bands. That timestamped data could be used to correct the positions reported by the rover receivers over packet.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary

534 Shannon Way                    |     Guaranteed!                    |     emory!kd4nc!ke4zv!gary  
Lawrenceville, GA 30244           |                                    |     gary@ke4zv.atl.ga.us

-----  
Date: Mon, 8 Aug 1994 01:34:35 GMT  
From: agate!howland.reston.ans.net!math.ohio-state.edu!magnus.acs.ohio-state.edu!  
csn!dora!etuggle@dora.arpa  
Subject: Question on AO-21  
To: ham-space@ucsd.edu

I'm kinda new to amateur radio and OSCAR. I am interested in using AO-21. I've been doing some reading about the LEO sats, and most of the information I've read indicate one should be able to work them with a vertical. I have however, been having a few problems. So, I thought I'd post a question or two.

Is it realistic to expect to work AO-21 with the following setup?

Icom 21WAT (modified to xmit 432-)  
20 Watt amp  
Dual band "Vent" antenna. (looks like a roof vent pipe)

Let me add I can copy AO-21 VERY well!! My guess is I'll need more than 20 watts. I am thinking about replacing the "Vent" antenna with a J-pole (the one described in the ARRL Handbook). The only problem there is that I would have to mount the antenna in the attic. (I live in a very restrictive area)

Like I said, my guess is I need more power. I hate to go out and buy a big amp if this isn't going to solve the problem however.

Does anyone have any experience working AO-21 with a vertical? If so how much power should I expect it to take? Anyone using the dual band J-Pole from the ARRL handbook inside an attic?

Thanks in advance for any help anyone can offer.

73,  
Eddie  
KB0LZZ, Parker CO

--  
Eddie D. Tuggle, etuggle@dora.auc.trw.com | "There is nothing either good or  
TRW Denver Operations                    | bad, but thinking makes it so."  
16201 Centretech Pky / Aurora, CO 80011 |                                    -- SHAKESPEARE  
Voice: 303.360.4001 FAX: 303.360.4133 |

-----  
Date: Thu, 11 Aug 1994 14:45:55 -0700  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!swrinde!elroy.jpl.nasa.gov!lll-winken.llnl.gov!apple.com!goofy-2.apple.com!user@network.ucsd.edu  
Subject: Where to find Satellite Freqs-Info  
To: ham-space@ucsd.edu

I am new to this field and have some questions. I would like to know where I can find a listing of all satellites and their frequencies. I have been using Orbitrack to visually locate some satellites but would like to use my scanner to listen in. Eventually, I will upgrade to a ground station. What magazines are best for general satellite info.

Thanks..

-----  
Date: 13 Aug 1994 16:12:13 GMT  
From: illuminati.io.com!news.tamu.edu!gerry@uunet.uu.net  
To: ham-space@ucsd.edu

References <32bqoe\$ur@eis.calstate.edu>, <32ggg8\$hsh@hollywood.cinenet.net>, <1994Aug13.082514.868@ke4zv.atl.ga.us>  
Subject : Re: Homebrew Global Positioning System (GPS)

In article <1994Aug13.082514.868@ke4zv.atl.ga.us>, Gary Coffman <gary@ke4zv.atl.ga.us> wrote:  
>In article <32ggg8\$hsh@hollywood.cinenet.net> maustin@hollywood.cinenet.net (Mark Austin) writes:

>>  
>>I had an idea. How about linking up a GPS with a cellular phone and  
>>...  
>>signal but you'd be able to find where someone is on demand (if they're  
>>within cellular calling range). Such a setup could last for a LONG  
>>time with the proper battery.

Everyone should have an idea occasionally... :=)

Well, this is, unfortunately, not a new idea. The similar systems I'm already familiar with sell for ~\$2000, which tells me that they are costing about \$1k for hardware PLUS s/w and R&D. And don't have much markup.

>You aren't going to be able to get a GPS and cell phone for a couple  
>hundred dollars. The cheapest GPS receivers are around \$400, and so  
>are cell phones unless you roll their cost into a long term service  
>contract. And monthly and per minute cell phone charges will mount  
>up fairly rapidly. By using packet radio, amateur or commercial,

>you can send position updates on a regular basis without incurring  
>quite as much cost.

Actually, if you shop carefully, the DGPS without a fancy display costs \$318. Quantity 1. It's a Motorola VP Encore core module, and it runs on 5 VDC (regulated), puts out TTL levels, and can receive RTCM-104S differential updates with Option B installed (for no cost, I might add!). Further, with Option B, it will put out the differential correction data, acting as a reference station, albeit in Motorola's Proprietary Binary format. The developers' manual has the full data format, making translation to the standard format pretty straightforward.

The cellphone could be the hard part, from a cost perspective. I've not looked into that, because there aren't too many cell sites near the ranch I'm where I'm putting GPS's on cows.

>DeLorme Mapping and City Streets are a couple of commercial map  
>systems that work with GPS. However, APRS (Automatic Packet Reporting  
>System) is in some ways better. While it lacks the friendly user  
>interface of the commercial products, and its pre-made map databases  
>are skimpy, you can make your own maps, and it works with local and  
>remote GPS receivers (using packet UI frames for the latter). It also  
>supports other information about the remote sites such as range and  
>bearing data from DF equipment, and arbitrary text messages.

Very true. In fact, it's seriously impressed the GIS institute here at Texas A&M (Nice Job, Bob!).

>However, what many of us want is \*differential\* GPS. The Coast Guard,  
>FAA, and others send out position deltas from a fixed benchmark  
>receiver that are received and used to correct the reading of the local  
>GPS receiver. These transmissions are either at MF or VHF depending on  
>the system. A special receiver is required, and either a GPS receiver  
>designed to work with differential signals, or a PC that can take the  
>timestamped position reports and reconcile them via software, is used  
>to give a true position. This method removes the deliberate SA jitter,  
>and other error sources such as varying atmospheric propagation factors,  
>from the position data. This allows much greater precision in determining  
>location than raw GPS alone.

Er. Ah. See above. Differential is getting easier and cheaper. A local ham club could go together, get a cheap GPS core, throw together an embedded PC clone for translation, and broadcast the results on packet. Now, if you want to get really fancy, use carrier-phase to get the roaming units a little smoother, AND incorporate DGPS.

>It would be nice if the APRS author would support this mode in his  
>software. Some of us are willing to set up benchmark receivers on

>the amateur bands. That timestamped data could be used to correct  
>the positions reported by the rover receivers over packet.

And, of course, if you want to, one can log DGPS corrections over a local area and post-process the logged fixes from the mobile units, to give DGPS corrected data. That's one of the standard methods used today. I don't personally think APRS is the appropriate place for DGPS post-processing corrections...

73, gerry

Gerry Creager N5JXS

gerry@cs.tamu.edu

\*\*\*\*\*

Cows In Space: Bovine location services with sub-bovine accuracy.

--

Gerry Creager N5JXS

\* SAREX Co-Investigator

gerry@cs.tamu.edu

\* A little radio that lets kids talk

gcreager@gothamcity.jsc.nasa.gov

\* to astronauts, and smile

\*\*\*\*\*

-----

End of Ham-Space Digest V94 #225

\*\*\*\*\*